

## Supporting Information

### **Facile Synthesis of MoS<sub>2</sub>/B-TiO<sub>2</sub> Nanosheets with Exposed {001} Facets and Enhanced Visible-Light-Driven Photocatalytic H<sub>2</sub> Production Activity**

Xixian Yang<sup>a</sup>, Hongyu Huang<sup>a,\*</sup>, Bei Jin<sup>b</sup>, Jin Luo<sup>b</sup>, Xiaosong Zhou<sup>b,c,\*</sup>

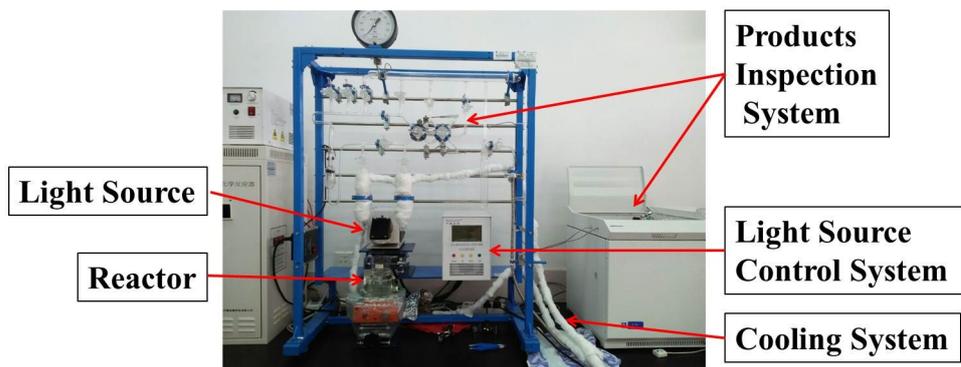
<sup>a</sup>Key Laboratory of Renewable Energy, Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences, No.2 Nengyuan Rd. Wushan, Tianhe District, Guangzhou 510640, PR China

<sup>b</sup>School of Chemistry and Chemical Engineering, Institute of Physical Chemistry, and Development Center for New Materials Engineering & Technology in Universities of Guangdong, Lingnan Normal University, Zhanjiang 524048, PR China

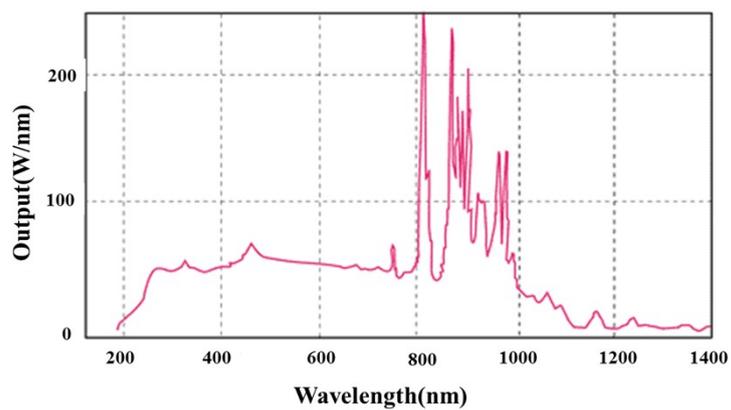
<sup>c</sup>Centre for Clean Environment and Energy, Environmental Futures Research Institute, Griffith School of Environment, Griffith University, Gold Coast QLD 4222, Australia

\*Corresponding author: Tel/Fax: +86-759-3174025; E-mail: [huanghy@ms.giec.ac.cn](mailto:huanghy@ms.giec.ac.cn)

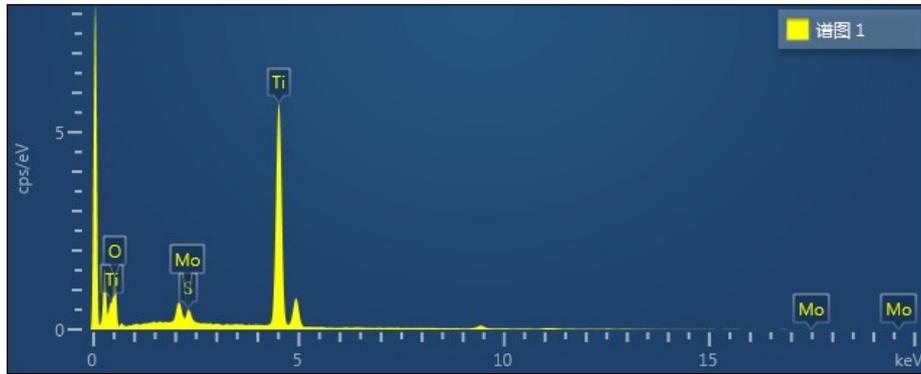
(H. Huang), [zxs801213@163.com](mailto:zxs801213@163.com) (X. Zhou)



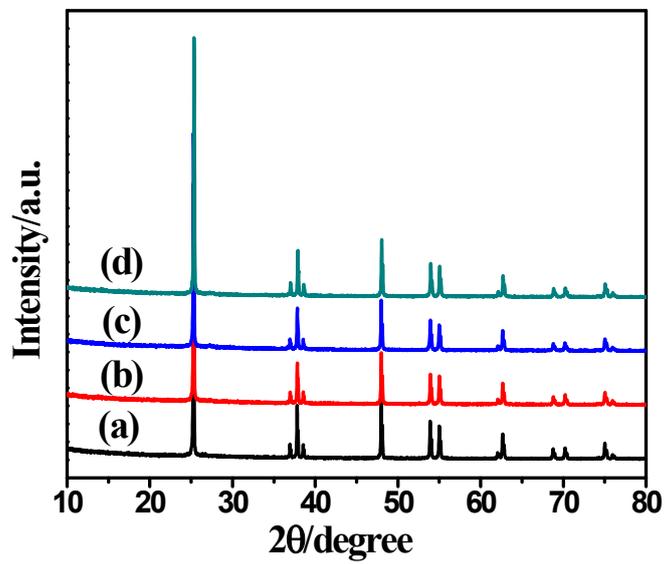
**Fig. S1** Schematic illustration of the photoreactor.



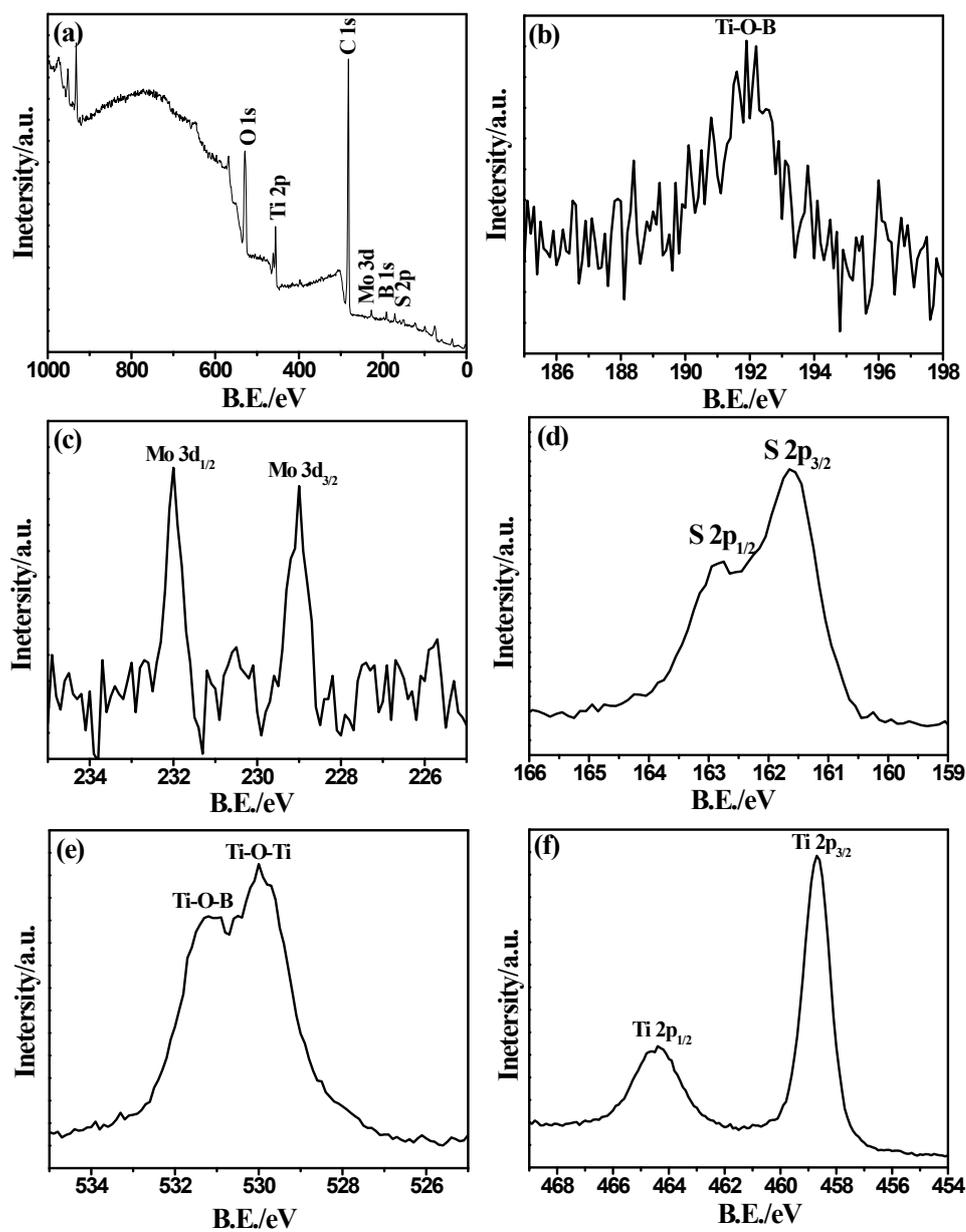
**Fig. S2** A spectrum of the Xe lamp in the experiment.



**Fig. S3** EDS spectrum of MoS<sub>2</sub>/B-TiO<sub>2</sub>.

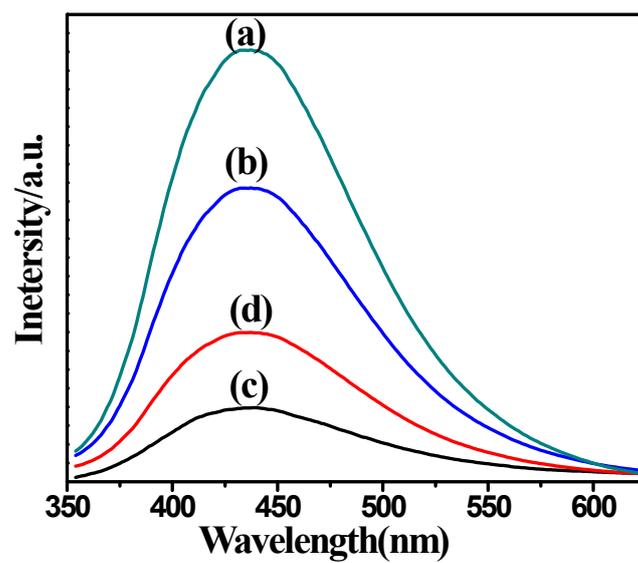


**Fig. S4** XRD patterns of the as-obtained samples: (a) pure B-TiO<sub>2</sub>; (b) 0.5 wt% MoS<sub>2</sub>/B-TiO<sub>2</sub>; (c) 1.0 wt% MoS<sub>2</sub>/B-TiO<sub>2</sub>; (d) 2.0 wt% MoS<sub>2</sub>/B-TiO<sub>2</sub>.



**Fig. S5** XPS spectra of the as-prepared sample 1.0 wt% MoS<sub>2</sub>/B-TiO<sub>2</sub>: (a) survey; (b)

B 1s; (c) Mo 3d; (d) S 2p; (e) O 1s; (f) Ti 2p.



**Fig. S6** PL spectra of as-synthesized samples: (a) pure B-TiO<sub>2</sub>; (b) 0.5 wt% MoS<sub>2</sub>/B-TiO<sub>2</sub>; (c) 1.0 wt% MoS<sub>2</sub>/B-TiO<sub>2</sub>; (d) 2.0 wt% MoS<sub>2</sub>/B-TiO<sub>2</sub>.